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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,240	10/16/2003	Susann Marie Keohane	AUS920030041US1	1133

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EXAMINER	
WEINTROP, ADAM S	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,240	KEOHANE ET AL.	
	Examiner	Art Unit	
	Adam S. Weintrop	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. **Claims 1, 9, 12, and 21** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 12, and 20 of U.S. Patent No. 7,093,120. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1, 3, 9, 12, 15, and 21 of the application are directed towards providing SAN boot devices by storing a boot image of a boot device on a SAN and using the image to boot a SAN system, with the operation performing at SAN speeds. The patent US 7,093,120 claims 1, 12, and 20 are directed toward booting machines from boot files from boot devices stored on SAN volumes. The patent

claims include the steps of sending and receiving queries to boot the system, yet these steps are an obvious variant and the omitting of these steps do not create a patentably distinct claim, since one of ordinary skill in the art at the time of invention would see the requirement of sending and receiving queries to undergo the process of booting a machine. In addition, the patent claims are silent in respect to operating at SAN speeds, yet the inclusion of the SAN connected to the machine in the claims implies SAN speeds.

Claim Objections

3. **Claims 2, 6, 7, 12, 14, 16, and 17** objected to because of the following informalities:

Regarding **claim 2**, the term "a boot device" in line 4 has already been defined and should be replaced with --the boot device-- to improve claim clarity.

Regarding **claim 6**, the terms "a boot device" in lines 3 and 6 and "boot device" in line 7 have already been defined and should be replaced with --the boot device-- to improve claim clarity.

Regarding **claim 7**, the term "a boot up" on lines 5-6 has already been defined and should be replaced with --the boot up-- to improve claim clarity.

Regarding **claim 12**, the period at the end of line 8 should be replaced with --; and-- to improve the clarity of the claim language.

Regarding **claim 14**, the term "a the boot device" on line 8 is grammatically incorrect and should be replaced with --the boot device--.

Regarding **claim 16**, the terms "a boot device" in lines 3 and 8 and "boot device" in line 9 have already been defined and should be replaced with --the boot device-- to improve claim clarity.

Regarding **claim 17**, the term "a boot up" on lines 5-6 has already been defined and should be replaced with --the boot up-- to improve claim clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 21-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claims 21-23**, the claims are directed towards a computer program product, which is computer code on a computer readable medium. A computer readable medium is defined in the specification in section 0060 to be carrier waves. Carrier waves and other electromagnetic phenomenon do not fall into a statutory category of invention such as a process, a manufacture, a method, or a composition of matter, and computer code simply "on" waves does not make them patentable subject matter. In addition, computer code on a medium, which does not execute is non-functional descriptive material. Computer code must be stored on storage mediums and be executed by a processor in order to be statutory subject matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-5, 9, 11-12, 15, and 20-21** are rejected under 35 U.S.C. 102(e) as being anticipated by Chang (US 2003/0126242).

Regarding **claim 1**, Chang anticipates:

In a storage area network (SAN) computer system having a volume group made up of one or more physical disks, a method for providing SAN boot devices (section 0011, lines 6-12, with the boot volume selected from multiple boot volumes, seen as a volume group made up of one or more physical disks and section 0020, lines 1-3, with a SAN system being used), said method comprising:

storing a boot image from a boot device on at least one disk within said volume group (section 0022, lines 9-12m with the boot files being stores in the pooled storage);

subsequently booting the SAN system from the boot image stored on the at least

one disk, wherein the SAN system's boot operation is completed from within said logical volume (section 0030, lines 12-15, with the client system accessing the boot image off the SAN storage, seen as booting the SAN system).

Regarding **claim 2**, Chang anticipates:

The method of Claim 1, said storing step further comprising:
copying boot install images from said first boot device to multiple disks within the volume group (section 0023, lines 3-12, with the boot images being stored on one or more pooled storage, seen as putting boot images on multiple disks within a volume group), whereby each disk of said multiple disks within said volume group may independently serve as a boot device for the SAN system and a boot process may be initiated from any one of the multiple disks in the volume group (section 0035, lines 7-18, with the client SAN system booting off of a unique image for that device found in one of the storage areas).

Regarding **claims 3 and 15**, Chang anticipates:

The method of Claim 1 or the SAN system of claim 12, wherein said storing step comprises:
selecting the at least one physical disk on which to copy the boot install images (section 0023, lines 3-12, with the boot images being stored on one or more

pooled storage, seen as putting boot images on multiple disks within a volume group, or selecting the disks on with to copy boot images);
selecting particular boot install images to copy to said at least one physical disk (section 0023, lines 3-12, with the boot images being stored on one or more pooled storage, and they are for different client systems, seen as selecting particular boot images), wherein less than all of said boot install images may be selected for copying (section 0023, lines 1-12, with the system having a base image alone for one embodiment and multiple different images for a different setup, seen as selecting less than all of the install boot images to copy).

Regarding **claim 4**, Chang anticipates:

The method of Claim 1, wherein said storing step further comprises: building the boot image on a computer system associated with said SAN; and uploading the boot image to said logical volume (section 0022, lines 3-15, where the boot image is created on a computer and then uploaded in the pooled storage).

Regarding **claim 5**, Chang anticipates:

The method of Claim 1, wherein said subsequently booting step comprises switching a boot sequence from the first boot device that is external to said logical volume to the at least one disk (section 0029, lines 3-22, with the

computer first locally booting form a first boot device, seen as the power on or startup systems, then to retrieve the networked boot image, seen as switching to the logical volume of the SAN storage).

Regarding **claim 9**, Chang anticipates:

The method of Claim 1, wherein said boot operation includes:
reading of the boot image at SAN speed, wherein further no boot images are pulled from across the network; and
installing images from the boot logical volume at said SAN speed (section 0037, lines 1-8, where a SAN system may be used with logical volumes and the files are sent across the SAN, seen as a SAN speed read).

Regarding **claims 11 and 20**, Chang anticipates:

The method of claim 1 or the SAN system of claim 12, wherein, when an administrator desires to install new optional programming parameters (OPPs), said method further comprises: importing the install volume group; mounting the file system hosted on said volume; installing the OPP images; updating a table of contents file for the file System; dismounting the file system; and exporting the volume group (section 0033, lines 2-11, where an administrative agent may add changes to the client volume, seen as importing, mounting, and installing OPP

images, and then the new client volume is updated and then in section 0029, lines 14-22, the boot image retrieved is client specific, implying a table of contents has been updated to identify any client volume changed, and section 0022, lines 9-12 where the volume is created and stored, seen as dismounting and exporting the volume group).

Regarding **claim 12**, Chang anticipates:

A storage area network (SAN) data processing system, comprising:
SAN fabric connection (section 0020, lines 1-3, with a SAN system being used);
an input/output (I/O) device (section 0021, lines 5-7, with the I/O device);
a logical volume comprised of one or more physical storage devices that are accessible on the SAN via the SAN fabric connection (section 0037, lines 1-10, with the SAN system having logical volumes, and it must have at least one physical disk);
means for providing a copy of a boot device on at least one of the storage devices in said logical volume, wherein said copy enables a boot of said SAN system from within the logical volume at SAN speed (section 0022, lines 9-12 with the boot files being stores in the pooled storage and section 0030, lines 12-15, with the client system accessing the boot image off the SAN storage, seen as booting the SAN system, and section 0037, lines 1-8, where a SAN system may be used with logical volumes and the files are sent across the SAN, seen as a

SAN speed read); and

means for booting said SAN system by installing images from the boot logical volume at said SAN speed (section 0030, lines 12-15, with the client system accessing the boot image off the SAN storage, seen as booting the SAN system, and section 0037, lines 1-8, where a SAN system may be used with logical volumes and the files are sent across the SAN, seen as a SAN speed read).

Regarding **claim 21**, Chang anticipates:

A computer program product, comprising:

a computer readable medium; and

program code on said medium that enables a system administrator to access a boot device (section 0033, lines 2-5, with the administrative agent access the boot image for a client) and copy boot install images from the boot device to a physical disk on a SAN (section 0022, lines 9-12, where the boot devices are copied to pooled storage and section 0020, lines 1-9, where SAN storage is used) which a logical volume is provided (section 0037, lines 1-7, with SAN logical volumes), wherein said physical disk serves as a boot device for said logical volume during subsequent boot (section 0030, lines 12-15, with the boot image, seen as a boot device on a disk, being used to boot the client from the pooled storage, and section 0037, lines 1-7, with SAN logical volumes being implemented to store the boot devices).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 13-14 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 2003/0126242) in view of Rietze et al. (US 6,904,482).

Regarding **claim 13**, Chang teaches all of the limitations as described above except for having a unique ID for each storage device, and having a BIOS in each SAN system, with a mechanism for turning it on and off, wherein a boot is initiated by the BIOS from an image stored on the storage device. The general concept of having an ID for each storage device and then booting from a BIOS upon turn on is well known in the art as illustrated by Rietze et al. Rietze et al. teaches that upon turn on, a BIOS controls the system to look for a OS on the network (column 7, lines 39-48), and the network is a SAN (column 6, lines 31-33), and each OS has a corresponding ID (column 7, lines 3-5, with each OS being identified using the OS identifier, seen as an ID for a storage device). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with using Ids for storage devices, and booting from a BIOS to point to the network stored boot image upon power on as taught by Rietze et al.

in order to reduce the number of storage systems as to reduce the maintenance as noted in Rietze et al.'s disclosure in column 1, lines 12-20 and column 2, lines 1-3.

Regarding **claim 14**, Chang teaches all of the limitations as described above, including:

Program code for copying boot install images from said first boot device to multiple disks within the volume group (section 0023, lines 3-12, with the boot images being stored on one or more pooled storage, seen as putting boot images on multiple disks within a volume group), whereby each disk of said multiple disks within said volume group may independently serve as a boot device for the SAN system and a boot process may be initiated from any one of the multiple disks in the volume group (section 0035, lines 7-18, with the client SAN system booting off of a unique image for that device found in one of the storage areas).

Chang does not teach program code for updating a table that provides a list of all boot devices accessible to the SAN system, including each storage device to which the boot install image is copied. The general concept of using a table and updating it to list available boot devices and each storage device that the boot image is copied to is well known in the art as illustrated by Rietze et al. Rietze et

al. teaches that a list of OS identifiers can be used to retrieve a list of boot devices accessible to the SAN system, and it includes the location or address of the storage device as well (column 7, lines 3-17). The list will be updated with new OS entries (column 7, lines 25-26, with the storage hosting a plurality of OS's, seen as creating new entries upon each OS's installation). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with using Ids for storage devices, and table for listing the storage devices and OS identifiers as taught by Rietze et al. in order to reduce the number of storage systems as to reduce the maintenance as noted in Rietze et al.'s disclosure in column 1, lines 12-20 and column 2, lines 1-3.

Regarding **claim 23**, Chang teaches all of the limitations as described above including using logical volumes for booting (section 0037, lines 1-7, with SAN logical volumes being implemented to store the boot devices), however Chang does not teach using program code to select a default boot device and wherein a path to the default boot device is encoded in the BIOS path. The general concept of booting from a default boot device and having the path encoded in the BIOS is well known in the art as illustrated by Rietze et al. Rietze et al. teaches that a boot device is selected based on the server identifier (column 7, lines 3-17, with using a server identifier is seen as selecting a default boot device since it will automatically find the right OS to boot) and Rietze et al. also teaches the path to the default boot image is encoded in the BIOS (column 7, lines 40-48). It would

have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with using default boot devices and encoding of the path into the BIOS as taught by Rietze et al. in order to reduce the number of storage systems as to reduce the maintenance as noted in Rietze et al.'s disclosure in column 1, lines 12-20 and column 2, lines 1-3.

9. **Claims 6-8, 10, 16-19, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 2003/0126242) in view of Cromer et al. (US 5,860,001).

Regarding **claims 6 and 16**, Chang discloses all of the limitations as described above, including the use of SAN based disks in logical volumes for storing boot images (section 0020, lines 1-3, and section 0037, lines 1-7, with SAN logical volumes being implemented to store the boot devices with a SAN system being used) and switching a boot sequence from the first boot device that is external to said logical volume to the at least one disk (section 0029, lines 3-22, with the computer first locally booting form a first boot device, seen as the power on or startup systems, then to retrieve the networked boot image, seen as switching to the logical volume of the SAN storage). Chang does not disclose booting up a SAN system in maintenance mode, and generating a prompt for a system administrator to select a boot device from among a displayed list of available boot devices, and then automatically encoding the identification and routing information of the selected boot device in the BIOS. The general concept of

booting in maintenance mode, then selecting a boot device from a list, and then booting from the device using information in the BIOS is well known in the art as illustrated by Cromer et al. Cromer et al. teaches that a system can be booted in maintenance mode to allow the selection of boot devices from a boot device list (column 7, lines 56-60, and column 8, lines 15-24). This information is stored in the BIOS as identification and routing, since it identifies what device to use, and how to access that boot device, such as a network boot, and since the BIOS runs the POST, or "power on self test", the BIOS is responsible for booting operations upon startup (column 3, lines 11-15 and column 7, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with using a maintenance mode to select a boot device and then storing that selection in the BIOS as taught by Cromer et al. in order to customize boot up procedures depending on how a computer was powered on as to increase automation as noted in Cromer et al.'s disclosure in column 2, lines 60-64.

Regarding **claims 7 and 17**, Chang discloses all of the limitations as described above, including using a SAN (section 0020, lines 1-3, with a SAN system being used). Chang does not teach monitoring for an occurrence of a predefined condition and initiating said switching when one of a plurality of said predefined condition occurs;

wherein said predefined conditions include: (1) receiving an error signal from the first boot device when a boot up is desired; (2) being unable to access said first

boot device when a boot up is desired; (3) encountering a failure on said SAN computer system that results in a shut down of said system; and (4) system administrative directive to re-boot system from a selected one of said at least one disk.

The general concept of switching boot devices when one of a plurality of these conditions occurs is well known in the art as illustrated by Cromer et al. Cromer et al. teaches that a boot device switching from a local boot to a network boot occurs upon being unable to access the first boot device (column 10, lines 58-67 and column 11, lines 1-5). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with monitoring for a predefined condition to enact switching of the boot devices as taught by Cromer et al. in order to customize boot up procedures depending on how a computer was powered on as to increase automation as noted in Cromer et al.'s disclosure in column 2, lines 60-64.

Regarding **claims 8 and 18**, Chang discloses all of the limitations as described above, including the use of SAN based disks in logical volumes for storing boot images (section 0020, lines 1-3, and section 0037, lines 1-7, with SAN logical volumes being implemented to store the boot devices with a SAN system being used). Chang does not teach selecting a first boot disk, and then upon failure of the first boot disk, selecting a second boot disk according to a pre-established

order. The general concept of switching boot disks upon failure of the first boot disks according to an order is well known in the art as illustrated by Cromer et al. Cromer et al. teaches boot disks can be tried in series upon failures according to an order (column 7, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang's SAN based boot disks with serially attempting to boot from devices according to an order as taught by Cromer et al. in order to customize boot up procedures depending on how a computer was powered on as to increase automation as noted in Cromer et al.'s disclosure in column 2, lines 60-64.

Regarding **claims 10 and 19**, Chang discloses all of the limitations as described above including using logical volumes on a SAN boot volume (section 0020, lines 1-3, and section 0037, lines 1-7, with SAN logical volumes being implemented to store the boot devices with a SAN system being used), pointing the system at the install volume group (section 0029, lines 14-22, with the response pointing the system at the right path to the install image); initiating an boot installation process to import the install volume group (section 0030, lines 12-15, with the system booting off of the found client specific image); and install the base operating system (BOS) image, which in turn installs the proper devices and optional OPP support desired (section 0022, lines 9-12, with the images being OS and application files, seen as BOS and optional OPP support). Chang does not teach performing this method upon an occurrence of a corrupted boot volume. The

general concept of switching boot disks upon failure of the first boot disks is well known in the art as illustrated by Cromer et al. Cromer et al. teaches boot disks can be tried in series upon failures according to an order (column 7, lines 48-55). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang's SAN based boot disks with serially attempting to boot from devices as taught by Cromer et al. in order to customize boot up procedures depending on how a computer was powered on as to increase automation as noted in Cromer et al.'s disclosure in column 2, lines 60-64.

Regarding **claim 22**, Chang discloses all of the limitations as described above, except program code for displaying a graphical user interface (GUI), wherein said GUI displays a list of available boot install devices and enables a system administrator to manually select which device among the list of available boot install devices to utilize as a boot install device, and wherein further said GUI enables a system administrator to set up a physical volume to receive a copy of said boot image. The general concept of displaying a GUI to allow a selection of boot devices among a list of available boot devices, and set up a volume to receive the copy of the boot image is well known in the art as illustrated by Cromer et al. Cromer et al. teaches a GUI can be accessed to change the order of boot devices, seen as setting a boot install device (column 8, lines 15-26 and 38-41), and if the network is chosen as a boot device, then remote booting occurs, seen as setting up the physical volume on the computer to receive the

copy of the boot image (column 11, lines 2-5). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chang with serially attempting to boot from devices according to an order created by a GUI as taught by Cromer et al. in order to customize boot up procedures depending on how a computer was powered on as to increase automation as noted in Cromer et al.'s disclosure in column 2, lines 60-64.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Heil (US 6,895,480) teaches sharing a boot volume among server blades on a SAN system.

Cronk et al. (US 6,532,538) teaches running multiple operating systems at the same time using identification keys.

Panas et al. (US 6,473,857) teaches loading boot images from a mass storage system.

"Functionality and Performance Evaluation of File Systems for Storage Area Networks (SAN)" (Bancroft et al.) describes SAN systems and their solutions.

"Volume Management in SAN environment" (Kim et al.) teaches logical volume management for SAN systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam S. Weintrop whose telephone number is 571-270-1604. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AW 6/26/07

JASON CARDONE
SUPERVISORY PATENT EXAMINER